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INSTITUTES AID LENINGRAD BOILER PRODUCTION

SCIENTISTS DESIGN NEW MACHINES -- Leningradskaya Pravda, No 67, 19 Mar 50

Enterprises in the Leningrad area are getting technological assistance from the Central Scientific Research Institute for Boilers and Turbines imeni I. I. Polzunov.

Scientists of the institute, working in close collaboration with industry, have designed and put into production a new shaft-mill stoker. A brigade from the institute has assisted one heat-and-electric-power plant in putting into service a high-pressure boiler, equipped with the most powerful shaft-mill stoker in the world. It was computed that by replacing the regular type stoker having the drum-ball mill with the shaft-mill stoker, millions of rubles will be saved yearly. Similar stokers are being installed in other electric power plants.

The institute has contracted to work with seven power plants on economy measures in consumption of lignite, peat, and shale, and on problems connected with combustion of lump peat in high-speed burners. It will also work on cyclone coal burners. The boiler division participated in the building on a new drum-type boiler and is now occupied with production of improved low-capacity boilers.

Durability of turbine blades is one of the basic problems confronting the institute. In many cases the blades break after metal fatigue has set in, caused by their vibration. Thorough tests are needed to avoid this, but until recently fatigue tests could be made only on cylindrical samples of the blade metal, which did not give a definitive indication of the durability of the finished blades. In answer to these problems, the institute has built a new electric vibration machine, which can test finished blades, both of magnetic and nonmagnetic metal, at any temperature.

This machine has played an important role in solving many difficult problems of turbine building. It is easy to build and set up, but unfortunately its utilization in production is being brought about slowly, and with great

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difficulty. In the Plant imeni Stalin, for example, conferences on the machine have been going on for  $1\frac{1}{2}$  years, though it should take only  $1\frac{1}{2}$  months to set the machine up and put it into operation.

The institute has helped the Plant imeni Stalin, however, to develop an alloy for castings and forgings for steam turbines, and this year it will work with the plant to set up production of welded high-pressure turbine cylinders. It also plans to work on setting up an electric vibration machine in the Plant imeni Lenin and in other enterprises.

Collaboration of the institute with the Plant imeni Lenin is especially fruitful. Here scientists are working on the design of gas turbines, a newcomer among the power units. Because of the high temperature to which these turbines are subjected, some of their parts must be made from heat-resistant alloys, and preliminary testing of these parts is very important.

The institute will participate in setting up an experimental model of a cinder-intercepting economizer in one Leningrad plant, and will also deal with problems of automatic regulation of burners and boilers. It will help the Ekonomayzer Plant start production of small ventilator blowers, and is now working with the Plant imeni Kirov on testing the durability of machine parts. The institute also plans to introduce into the turbine-building plants, including ones outside the Leningrad area, a method of finishing helical blades on lathes.

#### RESEARCH, TESTING FOSTERED -- Leningradskaya Pravda, No 47, 24 Feb 50

The Leningrad Plant imeni Lenin cleared a profit of about 5 million rubles in 1949, put 14 new types of machines into production, and firmly established itself as a turbine-building plant. The electric furnace section has come up from behind to occupy one of the leading positions, achieving a sharp rise in production indexes. The furnaces consume 17 percent less electric power per ton of steel, while consumption of carbon electrodes has decreased 50 percent and the durability of furnace linings has been increased 100 percent.

Various institutes have been collaborating with the plant on some of its problems. The Leningrad Polytechnical Institute is working with plant designers on the construction of a static apparatus for checking profiles of turbine vanes. The Institute of the Refrigeration and Dairy Industry has conducted research for the plant which enabled it to use less scarce material in construction of machines designed to run under extreme temperatures; 100,000 rubles were saved as a result. The Central Scientific Research Institute for Boilers and Turbines imeni Polzunov helped the plant set up a creep-testing laboratory, a project which had been long postponed because the plant lacked specialists in that field. A fourth institute is working with the plant on gas-pressure casting of steel and bronze.

The plant was interested in the experiments of Prof N. A. Kuznetsov on the use of aluminum for deoxidizing malleable steel. Tests showed the steel smelted under this method to be of high quality, while the ingots rolled easily and had no defects. Further development of the process was halted, however, since steel thus produced is not in the group called for in the pertinent GOST.

#### NEW TURBINES AMONG WORLD'S GIANTS -- Sovetskaya Moldaviya, No 61, 24 Mar 50

The series of new, 102,000-horsepower hydroturbines, built by the Leningrad Metal Plant imeni Stalin for the Dnepr Electric Power Station, are among the most powerful in the world. Designed by N. N. Kovalev and a group of

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specialists at the plant, each turbine has a working wheel weighing nearly 100 tons, with a diameter of about 5.5 meters.

PETROLEUM INDUSTRY TO GET NEW TURBINE -- Sovetskaya Estoniya No 30,  
4 Feb 50

Two new turbines were completed by the Leningrad Nevskiy Machine-Building Plant imeni Lenin in January. On 2 February a 4,000-kilowatt turbine was sent to a ferrous metallurgy plant. Tests have been completed on a 500-kilowatt turbine, designed for use in the petroleum industry.

SMALL TURBINES AID PLANT CONSTRUCTION -- Bakinskiy Rabochiy, No 33,  
15 Feb 50

Small turbines made at the Leningrad Metal Plant imeni Stalin are being used on sites of hydroelectric power plant construction, where they are decreasing building costs and cutting completion time.

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